

Nonlinear optics in silicon on insulator nanowires

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Abstract:

I am working at institute d'optique that was established in 1920 with a group of research called MANOLIA (nonlinear materials and applications)

The research project is to study nonlinear optics in SOI (silicon on insulator) nanowires with cross section about 0.1-0.2 μm^2 .Non-linear propagation could be investigated using OPO (optical parametric oscillator) with incident peak power of 100 W and repetition rate of 80 MHz, while the optical injection setup was performed using two identical microscopic objectives.

The importance of studying silicon sample is due to the fact that silicon exhibits high refractive index which allows for a high confinement of optical waves to a sub-micron region , moreover silicon does nt exhibits linear and second order optical properties, xhile it exhibits third order non-linearity."